July 7/18/88

MRID No. 263580

DATA EVALUATION RECORD

1. **CHEMICAL:** Ortho Fly Killer D (36% Naled Technical)

2. **TEST MATERIAL:** Ortho Fly Killer D; Lot No. SX-1597; PN 3021L; 36% as Naled Technical

3. **STUDY TYPE:** Acute Freshwater Fish, Flow-through
Species tested: Bluegill (Lepomis macrochirus)

4. **CITATION:** Surprenant, D.C. 1986. Acute Toxicology of Ortho Fly Killer D to Bluegill Lepomis macrochirus under flow-through conditions. Bionomics Report #BW-86-2-1951. Prepared by Springborn Bionomics, Inc., Wareham, Massachusetts. Submitted by Chevron Environmental Health Center, Inc., Richmond, California. MRID Number 263580

5. **REVIEWED BY:**

Kimberly D. Rhodes
Aquatic Toxicologist
ESE

Signature: Kimberly D. Rhodes
Date: May 11, 1988

6. **APPROVED BY:**

Isabel C. Johnson, M.S.
Principal Scientist
KBN Engineering and
Applied Sciences, Inc.

Signature: Isabel C. Johnson
Date: May 16, 1988

for Henry T. Craven
Supervisor, EEB/HED
USEPA

Signature: John Noles
Date: 7/18/88

7. **CONCLUSIONS:** This study is scientifically sound, but does not fulfill the Guidelines requirements for a warmwater fish because it did not include a control of the inert carrier. The 96-hour LC50 value based on nominal concentrations of Ortho Fly Killer D, as whole material for Lepomis macrochirus was 1.2 mg/L. Therefore, Ortho Fly Killer D is classified as moderately toxic to Bluegill.

8. **RECOMMENDATIONS:** N/A

9. BACKGROUND: N/A

10. DISCUSSION OF INDIVIDUAL TESTS: N/A

11. MATERIALS AND METHODS:

A. Test Animals: Lepomis macrochirus were obtained from a commercial fish supplier in Connecticut and maintained for a minimum of 14 days. The fish were 0.94 to 2.98 grams wet weight with an average of 1.62 grams wet weight. No mortality was observed during the 48-hour holding period immediately prior to testing. Juvenile fish, ranging from 41 to 60 millimeters with an average length of 50 millimeters, were selected for testing. Fish were fed a dry commercial pelleted food, ad libitum, during holding.

B. Test System: The exposure system used in this study was a modified, proportional diluter, similar to that described by Mount and Brungs (1967) with a 0.65 dilution factor. Each glass test aquarium measured 39 x 20 x 25 centimeters with a 19-cm high standpipe which maintained a constant test water volume of 15 liters. The flow rate provided 6.2 volume additions per day. The temperature was maintained by a water bath at 22 $\pm$ 1°C.

The dilution water was well water with a total hardness range as $CaCO_3$ of 28 - 30 mg/L, an alkalinity range of 26 - 31 mg/L, a pH range of 7.3 - 7.4 and a specific conductance range of 100 - 140 umhos/cm during the study period.

C. Dosage: 96-hour acute flow-through test

D. Design: Ten bluegills were tested per test aquarium and all treatments duplicated (20 per treatment level). A control and nominal Ortho Fly Killer D concentrations of 1.9, 1.2, 0.81, 0.53, 0.34 0.22 mg/L were maintained. Nominal concentrations, as Naled Technical, were 0.68, 0.43, 0.29, 0.19, 0.12, 0.079 mg/L. The mean measured Naled Technical concentrations were 0.60, 0.36, 0.22, 0.15, 0.080, 0.084 mg/L.

E. Statistics: The computer program developed by Stephan et al. was used to calculate the LC50 values.

12. REPORTED RESULTS: "The test concentrations (nominal and mean measured) corresponding cumulative mortalities and observations made during the toxicity test are summarized in Table 2" (attached) "The 96-hour LC50 value based on nominal concentrations of Ortho Fly Killer D was calculated by probit analysis to be 1.2 mg/L with a 95 percent confidence interval of 1.0 to 1.3 mg/L. Calculations based on mean measured concentrations of Naled Technical resulted in a 96-hour LC50 (95% confidence interval) of 0.35 (0.30 -0.41) mg/L.

13. STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES:
"The 96-hour LC50 value based on nominal concentrations of Ortho Fly Killer D was calculated by probit analysis to be 1.2 mg/L with a 95% confidence interval of 1.0 to 1.3 mg/L."

The 96-hour LC50 for Lepomis macrochirus exposed to mean measured concentrations, as Naled Technical, under flow-through test conditions was 0.35 mg/L with 95 percent confidence limits of 0.30 and 0.41 mg/L.

The data were audited by the laboratory's Quality Assurance Unit to assure compliance with protocols, standard operating procedures and pertinent EPA Good Laboratory Practice (GLP) Regulations. A GLP compliance statement was included and signed by the Quality Assurance Unit.

14. REVIEWER'S DISCUSSION AND INTERPRETATION OF STUDY RESULTS:

A. Test Procedure: The test procedures were generally in accordance with protocols recommended by the Guidelines, but deviated from the SEP as follows:

SEP states that the temperature should be measured and recorded every six hours if temperature is controlled by a water bath. The temperature for this test was taken every 24 hours.

A control of the inert carrier was not conducted concurrently with the test.

B. Statistical Analysis: The reviewer used the computer program developed by Stephan et al. to calculate the LC50 values. These calculations are attached. The moving average method provides a similar LC50 of 0.34 mg/L and 95 percent confidence limits of 0.29 to 0.39 mg/L. The report did not specify the slope of the toxicity curve as required by the SEP, but the value calculated by Stephan's program was 6.44.

C. Discussion/Results: The 96-hour LC50 value based on nominal concentrations of Ortho Fly Killer D, as whole material ,was 1.2 mg/L. Therefore, Ortho Fly Killer D is classified as moderately toxic. The test was conducted at a water hardness of 28-30 mg/L as $CaCO_3$ and a temperature of 22°C.

D. Adequacy of the Study:

(1) Classification: Supplemental

(2) Rationale: N/A

(3) Repairability: Yes, provide inert carrier control data

15. COMPLETION OF ONE-LINER FOR STUDY: Yes, 5/11/88.